

By Larry Reichenberger

# A new life for 2,4-D

**N**early 60 years after it became the first selective herbicide, 2,4-D has been given a new lease on life. Late last summer, the Environmental Protection Agency (EPA) completed a long-delayed review of the chemical and cleared the way for its reregistration. The EPA determined that the health and environmental concerns that have plagued 2,4-D for decades are not significant threats as long as the herbicide is used according to instructions. The ruling opens the way for roughly 650 products containing the chemical to renew registrations and update labels.

"The EPA announcement completed a 17-year review process for 2,4-D," says Larry Hammond, technical committee chairman of the Industry Task Force II on 2,4-D Research Data. "EPA's action is consistent with other authorities including the World Health Organization, Health Canada, and the European Commission. 2,4-D has been vital to food production around the world and this helps insure that role will continue in the future."

**A long history.** In 1943, Dr. Franklin D. Jones invented 2,4-D while experimenting with plant growth regulators to increase food production. He created a synthetic version of a naturally occurring compound found in most plants, but learned that instead of increasing growth it killed broadleaf plants (dicots) without harming grasses (monocots). The plant physiologist at a small Pennsylvania research company had created the world's first selective herbicide.

Introduced in 1946, 2,4-D became the most widely used herbicide in the world and is still the third most popu-

lar in the U.S. and Canada. In 1988, an economic assessment of the benefits of 2,4-D in Canada set the value at \$350 million. A similar U.S. study in 1996 pegged the impact at \$1.7 billion annually—split about evenly between increased crop yields, savings over more expensive weed-control methods, and decreased food prices. In 2004, the Henry Ford Foundation listed 2,4-D as one of the 75 most important innovations of modern time.

However, 2,4-D's popularity has come at a price. The product has been targeted by a number of environmental activist groups and branded as a health risk. Fears were fueled by a few early studies, including one that showed 2,4-D caused damage when injected into the brains of mice.

"An avalanche of new studies have shown the old ones to be incorrect," says Hammond. "More than 700 tech-



*Agriculture's oldest herbicide steps into the future*



nic studies on toxicology and environmental impact have been done on 2,4-D. That's impressive when you consider that the typical new product only requires about 150 such studies. It's the findings of these studies that the EPA used in making their decision on reregistration."

However, the news on 2,4-D isn't being cheered by all. "We are disappointed that 2,4-D was not classified as a possible carcinogen, despite what we believe to be clear evidence that indicates it's true. This battle is not going away," says Shawnee Hoover, special projects director at Beyond Pesticides, a Washington, D.C. based environmental group.

**Benefit to farmers.** The EPA's action does help ensure that 2,4-D will remain on the market for at least 15 more years. That's good news to farmers who are relying on it to provide low-cost weed control on more and more no-till acres. "It is especially important to supplement products used for burndown in no-till," says Bob Hartzler, Extension weed scientist at Iowa State University. "Glyphosate is weak on winter annual weeds and that's one area where 2,4-D is strong."

"We see a future for 2,4-D much like its past," Hammond says. "It will be relied on as a mixture with other herbicides to provide a broader spectrum of weed control at a low cost. There is very little indication at this point in time that weeds are becoming resistant to 2,4-D."

And, there may even be a new role in the future for agriculture's oldest herbicide. USDA researchers have already used genetic engineering to develop 2,4-D resistant cotton. Soybeans and canola are also possible.

"The only limitation to this development is in preventing 2,4-D drift from damaging traditional crops planted nearby," adds Hammond. ■

► **Far left:** Kansas State University weed scientist Dave Regehr says 2,4-D's low cost makes it a favorite to control pigweeds in grain sorghum.

► **Left:** The EPA has issued a Reregistration Eligibility Decision for 2,4-D that will extend the 60-year life of the oldest of selective herbicides.